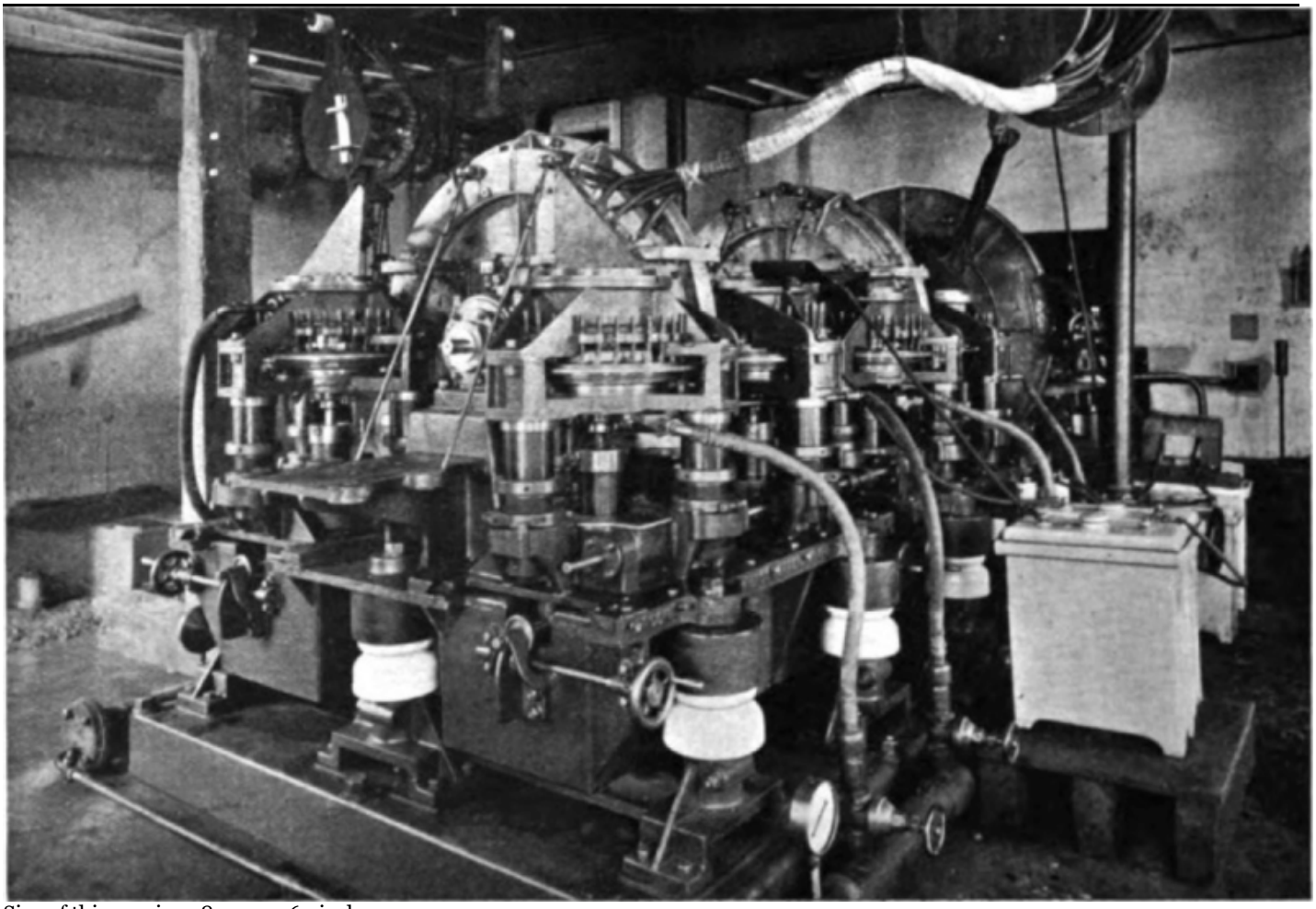
File:Marconi Carnarvon 300kW transatlantic spark transmitter 1919 - rotary spark dischargers.png



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Summary

Description

English: The rotary spark discharger wheels of the 300 kW transatlantic spark transmitterbuilt in 1917 by the Marconi Wireless Telegraph Co at Carnarvon, Wales. This was the most powerful spark transmitter ever built, transmitting commercial radiotelegraphy traffic on a frequency of 21.5 kHz at a rate of 200 words per minute to receivers in Tuckerton, New Jersey and the RCA Radio Central station, Long Island, New York. It was obsolete by the early 1920s, superseded by vacuum tube transmitters.

The device has 3 rotary spark gaps consisting of wheels with electrodes around the periphery, which passed close to stationary electrodes when spun by an electric motor. Each spark gap was in a tuned circuit consisting of a huge bank of capacitors charged to a high voltage by a DC dynamo, and a tuning coil or oscillation transformer, located in another room. When an electrode on the wheel passed close to the stationary electrode, the ensuing spark discharged the capacitors through the coil, creating a damped wave, an exponentially decreasing sinusoidal wave of oscillating current. The damped waves produced by the 3 wheels were timed so that when they were combined in the tank circuit of the transmitter they

overlapped and superimposed to produce a nearly continuous wave, a sine wave. The tuned circuit was connected to a huge mile-long wire antenna, and the energy in the oscillating current was radiated by the antenna as radio waves.

Date September 1919

Source Retrieved 12 April 2018 from "Great Wireless Stations: Carnarvon" in *Wireless World*magazine, Vol. 7, No. 78, September 1919, p. 304 on http://www.americanradiohistory.com